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ABSTRACT

A FLAT-SECTIONED DEVICE THAT TRAPS ENERGY FROM THE SUN OR ANY LIGHT SOURCE THROUGH THE PHOTOVOLTAIC EFFECT OF IT'S UPPER SURFACE MATERIAL COMPOSITION AND RELEASES LIGHT THROUGH THE ELECTROLUMINESCENCE EFFECT OF ITS LOWER SURFACE MATERIAL COMPOSITION, ALL THIS CARRIED OR MOUNTED ON AN EXTRUDED MATERIAL PROFILE.

ALTHOUGH THE PRINCIPLE DESCRIBED COULD USE DIFFERENT TYPES OF PHOTOVOLTAIC AND ELECTRO LUMINESCENT MATERIALS, OUR PROTOTYPE DEVICES CURRENTLY USE A COMBINATION OF "AMORPHOUS" (NOT CRYSTALLINE) SILICON PHOTOVOLTAIC CELLS WHICH ARE DEPOSITED ON ONE SIDE OF A PLASTIC SUBSTRATE BY A PHOTO PRINTING PROCESS, COMBINED WITH A LAYERED PHOSPHOR CRYSTAL-BASED ELECTROLUMINESCENT MATERIAL DEPOSITED ON A SIMILAR (TO THE PHOTOVOLTAIC SIDE) PLASTIC SUBSTRATE.

THE EFFECT DESCRIBED, COULD UTILIZE DE ACTUAL MANUFACTURING OF THE MATERIALS DEPOSITED ON A SAME SUBSTRATE OR TO DIFFERENT SUBSTRATES THAT COULD BE LAMINATED TOGETHER AS PART OF THE MANUFACTURING OR ASSEMBLY PROCESS.

THE RESULT IS OR COULD BE DESCRIBED AS A "LINEAR" (BY THE INCH) SUBSTRATE AND IT COULD BE MADE INTO INCREMENTAL LENGTHS TO FIT INTO AN EXTRUDED CARRIER OR BODY OF A LIGHT FIXTURE TO PROVIDE CORDLESS ILLUMINATION TO COMMERCIAL, INSTITUTIONAL, ARCHITECTURAL OR MUNICIPAL SIGNAGE AND STRUCTURES.